

We claim:

1. A process for coating internals in a reactor, except for the coating of electrically heatable, at least partly open-cell foams, with a catalytically active material or a precursor thereof, in which an aerosol which contains the catalytically active material or the precursor thereof as a disperse phase is provided and the aerosol is passed through the reactor at a rate which is established so that the disperse phase of the aerosol is deposited on the internals in the reactor.

5 10 2. A process as claimed in claim 1, wherein the aerosol is passed through the reactor at a velocity in the range from 0.1 to 10, preferably from 0.2 to 4, particularly preferably from 0.2 to 2, m/s.

15 3. A process as claimed in claim 1 or 2, wherein the disperse phase of the aerosol has a particle size of from 0.1 to 10 μm , preferably from 0.5 to 5 μm .

20 4. A process as claimed in any of claims 1 to 3, wherein the aerosol is produced by dry comminution of a solid catalyst or of a precursor of a solid catalyst, in particular to a particle size of from 0.1 to 10 μm , preferably from 0.2 to 5 μm , metering and dispersing in an inert gas stream, in particular in a nitrogen stream.

25 5. A process as claimed in any of claims 1 to 4, wherein the aerosol is produced by comminuting, by means of nozzles, a liquid which may have been heated or a liquid mixture, or a solution, suspension or emulsion which may have been superheated.

6. A process as claimed in any of claims 1 to 5, wherein the internals are formed from moldings which are movable relative to one another and are preferably present in the form of a fixed bed, fluidized bed or moving bed.

30 7. A process as claimed in any of claims 1 to 5, wherein the internals are present in the form of a consolidated, porous system, in particular in the form of woven fabric, knitted fabric, braid or foam, except for electrically heatable foams.

35 8. A process as claimed in any of claims 1 to 5, which comprises internals having ordered flow channels, the internals being in particular stacked packings or monoliths.

9. A process as claimed in any of claims 1 to 5, wherein the internals are pipes, in particular ribbed pipes, through which a heating medium is passed.

5 10. A process as claimed in any of claims 1 to 9, wherein the disperse phase deposited on the internals in the reactor is subjected to further process steps, in particular is fixed, activated and/or calcined.

10 11. A process as claimed in any of claims 1 to 10, wherein the coating is an initial coating.

12. A process as claimed in any of claims 1 to 10, wherein the coating comprises a reactivation of catalyst material on the surface of internals in a reactor.

15 13. The use of a process as claimed in any of claims 1 to 12 for coating internals in reactors for carrying out heterogeneous gas-phase reactions, in particular oxidation or dehydrogenation reactions, preferably for the synthesis of maleic anhydride, phthalic anhydride, acrolein, (meth)acrylic acid or ethylene oxide.